Application note

Steam measurement at Formosa Chemicals and Fibre Corporation (FCFC-Plastics) Taiwan

Benefits:

- Large turndown ratio to cover low to high flow
- Bi-directional flow capability thru the same meter
- Strong reputation in steam flow measurement
- Proven reliability built from previous projects
- Strong local support

Summary

FCFC Acrylonitrile Butadiene Styrene Resin (ABS Resin) plant in Hsin Kang, Taiwan, was looking after an online steam measurement solution for its utility line which featured some unique characteristics.

FCFC Plastics has four boilers at this facility used to produce steam. Recognizing an opportunity to improve efficiency and better harness steam generation the customer wanted to implement technology to measure steam flow.

Application

Process details:

Media:	Superheated steam at normal conditions
Flow:	-40 t/hr to +40 t/hr (bi-directional flow)
Pressure:	Normal at 18 barg (261 psig)
Temperature:	From 215°C to 235°C (419°F to 455°F)
Pipe material:	Carbon steel
Pipe size:	8" (DN200)

Challenge

FCFC decided to use boiler #1 as a pilot given that the steam generated is used for different purposes and therefore flows in both directions in the selected line.

Aside from the need for bi-directional flow, a serious challenge on its own, FCFC required the ability to measure at low flow – down to 1 ton/hr – up to high flow – 40 ton/hr. The application was also a challenge given there was insufficient available straight runs for the bi-directional measurement on either side of the meter. These three requirements ruled out several other technologies.

In selecting a solution FCFC also sought reassurances around accuracy, reliability, commissioning and service support capabilities.

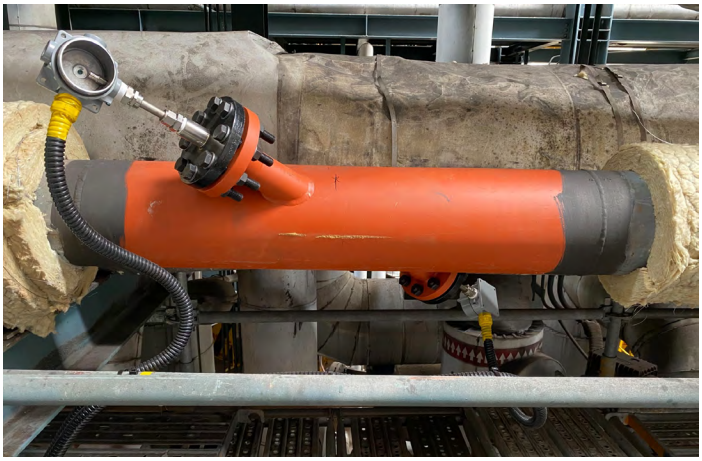
The solution

FCFC Plastics engaged with several suppliers to evaluate the technical proposals. However, in partnership with Panametrics, the customer selected the XGS868i single path with T5 transducers.

One meter was mounted on a butt welded customized flowcell with flow conditioners also butt welded to ensure optimal performance. The transducers were positioned at an angle from the horizontal axis because of adjacent pipes.

FCFC Plastics are very happy with the solution. From working blindly, the customer is now able to better monitor and control steam usage enabling them to tackle multiple challenges and achieve efficiencies.

The customer is now in discussions with Panametrics to apply the same solution to the remaining three boilers.



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